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EASTERN EUROPEAN GROSS
NATIONAL PRODUCT, 1950-1955

This report was prepared as a part of the US contribution to a NATO study comparing economic trends in the Free World and the Sino-Soviet bloc. Other parts of the US contribution concerned with Eastern Europe are: E-4, Eastern European Manpower and Physical Production, 1950-1955 and E-6, Eastern European GNP, 1955-1975.

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~~SECRET~~A. Trend of the Gross National Product of the European Satellites,
1950-1955

Increases in the total value of all goods and services produced (GNP) in the European Satellites since the war have reflected several important phenomena that should be taken into account in interpreting the meaning of changes in Satellite GNP and its future growth. Rapid industrialization of these economies has occurred uniformly under socialization of industry and authoritarian allocation of resources by the state through such means as taxation, compulsory deliveries from agriculture, regimentation of workers, rationing and pricing of consumer goods. In the years immediately after World War II large increases in GNP reflected, essentially, the period of recovery from the disorganization and destruction caused by the war. The reduction of underemployment, which was characteristic of most of the Satellite economies in the prewar period, and the forced acceleration in the use of resources also affected the increases in GNP. In addition, the achieved increases in the stock of capital goods yielded increases in GNP in succeeding periods. Future growth of GNP, however, will come to depend more and more on efficient utilization of resources and increases in productivity as a result of the efforts of labor and management, technological innovation, and continuing increases in the stock of capital equipment of these countries.

TABLE 1

Gross National Product of the
European Satellites, 1950-1955^{a/}

A. Country	<u>Billion 1955 Dollars</u>			
	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
Bulgaria	1.2	1.4	1.5	1.7
Czechoslovakia	7.9	9.8	10.3	11.1
East Germany	10.9	15.0	16.3	17.3
Hungary	2.7	3.4	3.4	3.6
Poland	16.7	19.2	20.7	22.1
Rumania	3.0	3.7	3.9	4.3
Total	42.4	52.5	56.1	60.1

^{a/} Excluding Albania.

The total Gross National Product of the European Satellites (excluding Albania) increased more than 40 percent during the period 1950-55. This

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represents an annual average of slightly more than 7 percent. The differential growth rates experienced by the various countries did not materially alter their relative sizes. Poland, East Germany and Czechoslovakia still accounted for almost 85 percent of the total European Satellite product in 1955.

B. Gross National Product by Sector of Origin

Analysis of GNP by sector of origin reveals the emphasis in all the Satellite countries on industry, construction and transportation. Agriculture, on the other hand, increased only slightly since 1950. Trade and Services generally has kept pace with the overall growth of GNP in these Eastern European economies.

TABLE 2

Gross National Product of the

European Satellites, by Sector of Origin, 1950-1955^{a/}

A. <u>Billion 1955 Dollars</u>	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
Industry	15.0	21.0	22.8	24.9
Agriculture	12.4	12.5	12.6	13.4
Construction	2.2	3.4	3.6	3.6
Transport and Communication	2.5	3.3	3.5	3.8
Trade and Services	10.2	12.3	13.6	14.4
Total	42.3	52.5	56.1	60.1

B. <u>Indexes (1950 = 100)</u>				
Industry	100	140	152	166
Agriculture	100	101	102	108
Construction	100	154	164	164
Transport and Communication	100	132	140	152
Trade and Services	100	121	133	141
Total	100	124	133	142

^{a/} Excluding Albania.

The agricultural sector indexes reflect the difficulty which has been experienced by the Satellite governments in attempting to increase agricultural output. The relatively slow rate of growth experienced in agriculture is, in part, a reflection of the investment emphasis of the Satellite planners. Similarly a residual claimant for resources within the industrial sector, light industry has not grown as rapidly as heavy industry.

~~SECRET~~C. Gross National Product by End Use

Estimates of GNP following an end use breakdown are not available for the European Satellites.

In their Five Year Plans, however, the Satellites have as a rule emphasized higher growth rates for industrial production than for agriculture and consumer services. Within industry the development of producer goods has received greater priority than the output of consumer goods. At the time of the Korean crisis the Satellites increased emphasis on investment in producer goods and defense industries at the expense of both consumer durables and agriculture. After 1953 some revision of these proportions were undertaken. Such revisions reduced the disproportions between the rates of growth of producer and consumer goods and relatively increased the allocation of inputs for agriculture. By the end of 1955 industrial production in the European Satellites had on the whole well exceeded the prewar level, but relatively more of the product was designated for industrial investment than before the war. The level of living was in general just returning to the prewar status. Satellite plans for the period 1956-60 again provide for more rapid growth of industry than agriculture and a greater increase in the output of producer goods than consumer goods. The disproportions, however, are not as marked as during the pre-1953 period. As Satellite industrial potential is expanded, slow growth in the output of consumer durables and some moderate increase in the level of living may be expected.

In common with the USSR, the European Satellites have been making a relatively greater allocation of resources to investment as against consumption purposes. It is likely that this emphasis upon investment will continue in the near future. Within their capabilities the Satellite economies have followed the pattern of the Soviet. Thus, for limited uses, the Soviet end use pattern may be assumed very similar to that of the Bloc as a whole.

TABLE 3

Gross National Product: Bulgaria

A. <u>Billion 1955 Dollars</u>	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
Gross National Product	1.2	1.4	1.5	1.7
B. <u>Indexes (1950 = 100)</u>				
Gross National Product	100	119	128	138
Industry	100	139	152	169
Agriculture	100	103	103	109
Construction	100	177	176	190
Transport and Communication	100	143	157	173
Trade and Services	100	116	133	142

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TABLE 4

Gross National Product: Czechoslovakia

A. <u>Billion 1955 Dollars</u>	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
Gross National Product	7.9	9.8	10.3	11.1
B. <u>Indexes (1950 = 100)</u>				
Gross National Product	100	124	130	140
Industry	100	131	138	150
Agriculture	100	105	98	107
Construction	100	154	164	169
Transport and Communication	100	129	136	147
Trade and Services	100	117	130	139

TABLE 5

Gross National Product: East Germany^{a/}

A. <u>Billion 1955 Dollars</u>	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
Gross National Product	10.8	15.0	16.3	17.3
B. <u>Indexes (1950 = 100)</u>				
Gross National Product	100	139	151	160
Industry	100	152	169	184
Agriculture	100	108	107	109
Construction	100	163	186	198
Transport and Communication	100	125	132	139
Trade and Services	100	134	144	150

^{a/} See Appendix B for an alternative estimate of the rate of growth of East German GNP.

TABLE 6

Gross National Product: Hungary

A. <u>Billion 1955 Dollars</u>	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
Gross National Product	2.7	3.4	3.4	3.6
B. <u>Indexes (1950 = 100)</u>				
Gross National Product	100	126	127	133
Industry	100	146	152	163
Agriculture	100	102	96	106
Construction	100	147	130	123
Transport and Communication	100	161	161	170
Trade and Services	100	114	126	130

TABLE 7

Gross National Product: Poland

A. <u>Billion 1955 Dollars</u>	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
Gross National Product	16.7	19.2	20.7	22.1
B. <u>Indexes (1950 = 100)</u>				
Gross National Product	100	115	124	132
Industry	100	132	146	161
Agriculture	100	97	99	101
Construction	100	149	151	151
Transport and Communication	100	140	149	166
Trade and Services	100	114	128	138

TABLE 8

Gross National Product: Rumania

A. <u>Billion 1955 Dollars</u>	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
Gross National Product	3.0	3.7	3.9	4.3
B. <u>Indexes (1950 = 100)</u>				
Gross National Product	100	123	130	143
Industry	100	146	156	178
Agriculture	100	106	113	128
Construction	100	246	248	205
Transport and Communication	100	161	162	172
Trade and Services	100	112	119	125

D. Methodology Used in Estimating the Gross National Products of the European Satellites

The national accounts estimates developed for this report rest upon prewar figures for the East European countries, which have been adjusted to serve as base year estimates. The base year estimates were then moved forward by indexes to obtain estimates for the postwar years. Published official national accounts data are incomplete and the methodology and definitions employed are not consistent with the US concept of GNP. Thus, because of differing price bases, and the lack of assurance that the methodology was consistent either among the countries or as among different time periods, it was decided not to employ, directly, official published data.

1. Base Year Estimates

The procedure for deriving base year estimates falls into three phases: (1) an estimate of 1938 GNP in local currency, (2) an estimate of 1938 GNP in 1955 US dollars, (3) the adjustment of these estimates to a postwar territorial basis.

Prewar national accounts data for the European Satellites are available from various sources. These have been adjusted so as to conform to the US concept of GNP, by the addition of omitted services, the conversion from a factor-price to a market-price basis, and the adjustment from a net to a gross product basis as required. The development of dollar estimates rests heavily on the work of Colin Clark, who estimated the national

accounts of most of the countries in the world in 1925-34 US dollars. These dollar estimates have been converted to 1955 dollars by the implicit deflator for US GNP.

2. Sector and GNP Indexes

The indexes which are used to move the individual country base year estimates of GNP are aggregations of individual sector indexes. The sector indexes in turn represent aggregations of individual industry or industry group indexes. The weights employed in the aggregation procedure are value-added for the industry, industry-group, or sector.

For the purposes of this report, GNP is divided into the following income-originating sectors: industry, agriculture, transport and communications, construction, trade and services. Discussion of the indexes for these sectors follows.

a. Industry Sector Indexes

The industry sector indexes prepared for this report were derived by aggregating indexes which are assumed to represent the levels of activity in industrial sub-sectors. These sub-sector indexes were derived from physical production series, weighted with appropriate prices. The weights used to aggregate the industry sub-sector indexes were employment data, wage bills, or net value added. It was assumed that employment (or wage bill) would provide a satisfactory measure of value added, i.e., that the relative size of value-added among industry sub-sectors would be approximated by the relative size of employment (or wage bill) in those sub-sectors.

Apart from the prices and value-added weights used to aggregate the indexes within the industry sectors, a further limitation is imposed upon the use of aggregated index by the commodity sample size and representativeness. The commodity sample upon which this index is based is quite small, being restricted to only those commodities for which data are available, or for which estimates can be made. Moreover, there is no assurance that the sample itself is truly representative of the industrial production of these countries.*

b. Other Sector Indexes

The indexes for the agricultural sectors are similar to the indexes prepared for the industry sub-sectors. The output of various agricultural commodities and timber are combined, using constant prices, to obtain an index of production. The same is true of the transport and communications sector index.

* See Appendix A for a further discussion of this index.

The index for the construction sector is obtained from estimates of the volume of construction or, in the absence of such figures, by estimates of the volume of investment. In some instances, where direct indicators of the volume of construction or investment were not available, the construction index was derived from data on the growth of employment and labor productivity in construction.

The trade and services indexes represent a weighted average of the index of retail trade turnover, in constant prices, and, except for Poland, an index of the non-agricultural labor force. For Poland the services index was calculated from data on employment and average wages. The biases introduced by these two indexes probably offset one another to some degree.

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APPENDIX A

A Comparison of Industrial Sector Indexes.

The comparison of the value added weighted index, constructed for this report, with the official gross production index for the various countries, shown in Table 10, indicates that the value added indexes show a generally slower rate of growth over the time period, 1950-55. For the period 1953-1955, however, the value added indexes grow at the same rate or slightly faster than does the gross production index. Although the value added concept used in the estimates of GNP differ considerably from the gross concept used in Satellite reporting it would be expected that the two indexes generally move in the same direction. Except for the rise in the average annual growth rate indicated by the calculated Polish index for 1954 this condition exists.

Appendix Table 1

A Comparison of Industrial Sector
Indexes, 1950-1955

(1950=100)				
	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
A. <u>Bulgaria</u>				
Value Added Index	100	139	152	169
Gross Production Index	100	157	170	186
B. <u>Czechoslovakia</u>				
Value Added Index	100	131	138	150
Gross Production Index	100	149	156	173
C. <u>East Germany</u>				
Value Added Index	100	152	169	184
Gross Production Index	100	159	175	190
D. <u>Hungary</u>				
Value Added Index	100	146	152	163
Gross Production Index	100	182	188	203
E. <u>Poland</u>				
Value Added Index	100	132	146	161
Gross Production Index	100	175	194	215
F. <u>Rumania</u>				
Value Added Index	100	146	156	178
Gross Production Index	100	181	193	220

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The discrepancy between the two indexes for the period 1950-53 may readily be explained by the transitional character of the Satellite economies during that time period. To cast light upon the subsequent period, 1953 to 1955, comparable indexes were constructed for US manufacturing from 1949 to 1954. The comparison of these indexes in Appendix Table 2 shows that for the selected years the value added weighted index grew more rapidly than did the gross production index. In fact, in only two years did the annual rate of change (positive or negative) of the gross production index exceed that of the value added index.

Appendix Table 2

US Manufacturing Indexes

	<u>Gross Production Indexa/</u>	<u>Annual Change</u>	<u>Value Added Indexb/</u>	<u>Annual Change</u>
1949	100.0		100.0	
1950	115.6	15.6	116.5	16.5
1951	121.7	5.2	124.7	7.0
1952	123.7	1.6	128.9	3.4
1953	135.4	9.4	140.2	8.8
1954	124.7	-7.9	130.9	-6.6

- a. Source: Manufacturing sales adjusted to 1949 prices.
b. Manufacturing component of the Federal Reserve Board Index of Industrial Production.

The restrictive features of the index used in constructing the GNP series, particularly the small sample size and the problems connected with the estimation of weights, warrant some attention to other data, notably the ECE indexes and the officially reported gross output trends. These suggest that in 1954, and to a lesser extent in 1955, the rates of growth achieved in the industrial, construction and transportation sectors may have declined more than is indicated in the value added series.

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APPENDIX B

The Growth of East German GNP, 1950-1955.

For East Germany, for which a substantially greater volume of data is available, an alternative calculation of the rate of growth was prepared. The results, presented in terms of factor cost, obtained by this different procedure are presented below. Based upon 1936 German prices, these results imply a somewhat smaller overall rate of growth of GNP, and a smaller rate of growth for 1954 and 1955, than the estimate presented in Table 5.

Appendix Table 3

Growth of GNP in East Germany, 1950-1955
Indexes (1950=100)

<u>Sector</u>	<u>1950</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>
Agriculture	100	119	119	125
Industry	100	148	156	165
Construction	100	133	147	150
Transportation ^a /	100	148	157	165
Trade and Services	100	116	120	125
Gross National Product	100	131	136	143

a. Excludes communications.